

APPENDIX B – Particle size distribution analysis methods by UW



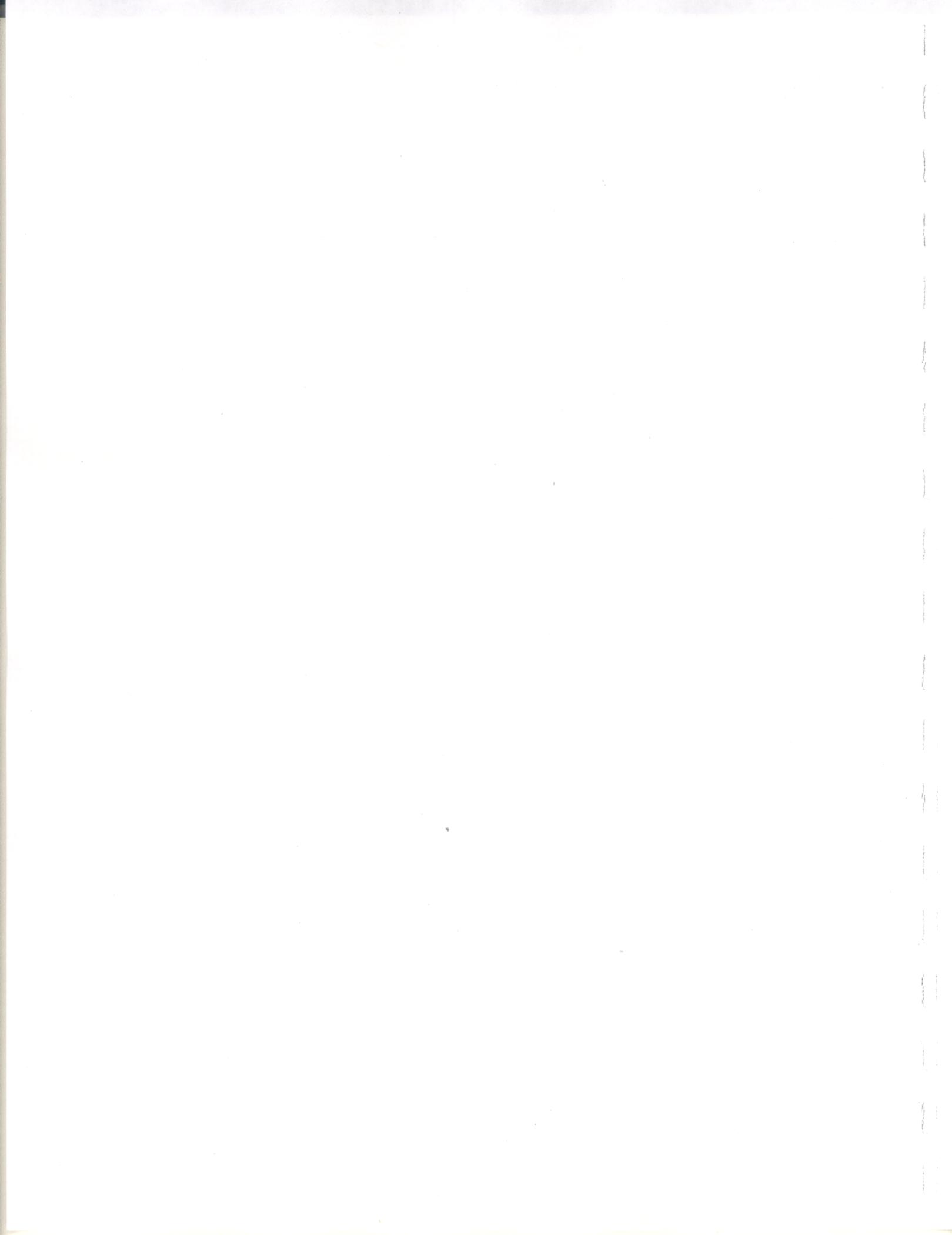
PSD, TSS, VSS Procedures

Prepared 8/21/01 by the University of Washington Department of Civil Engineering

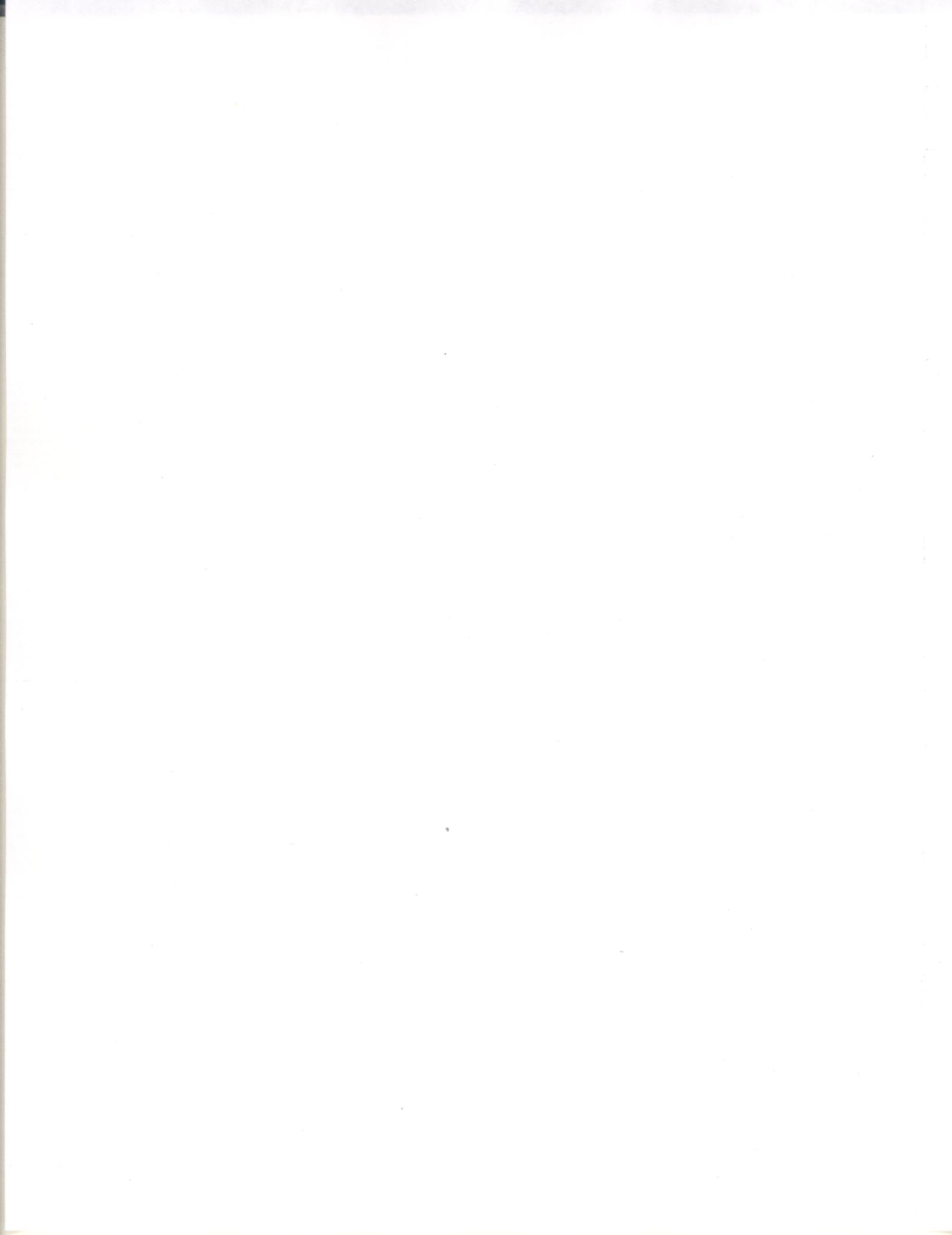
1. Calibrate weighing tins + blank filter papers (size: 4.7cm) by placing them in 105° C oven for ~2 hrs.
2. Measure sample volume.
3. Pour sample through 850-, 425-, 212-micrometer sieves (in that order from top to bottom!)
4. Place sieves upside down into corresponding marked beakers & rinse through with distilled water.
5. Take remaining sample to particle size analyzer (PSA).
6. Rinse PSA chamber with milli-q water.
7. Acquire background sample with milli-q water (see manual for instructions). It is important to minimize the amount of bubbles in the chamber.
8. After calibration acquire 3 readings for each sample (3 separate subsamples). It is best to re-calibrate between samples. Be sure to note the number assigned by the PSA to each reading. Also keep drained subsamples for later analysis.
9. Rinse chamber.
10. Take sample including the portions run through the sieves to vacuum pump.
11. Take weighing tins with filter papers out of the oven and record the dry weights. First, remember to always calibrate the scale.
12. Place filter paper onto the vacuum pump and secure.
13. Pour each size fraction through and record which tin # goes with which size fraction. Remember to rinse off any particles that may stick to vacuum device onto the filter paper.
14. Set the tins back in the 105° C oven for ~2 hrs.
15. Calibrate scale, weigh and record post dry weights. These numbers will be used to calculate TSS values.
16. For VSS values, place tins in 550° C oven for 15-20 mins. Then repeat step 15.

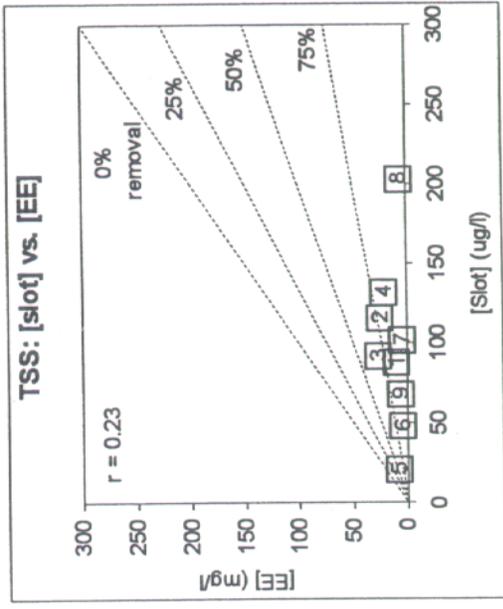
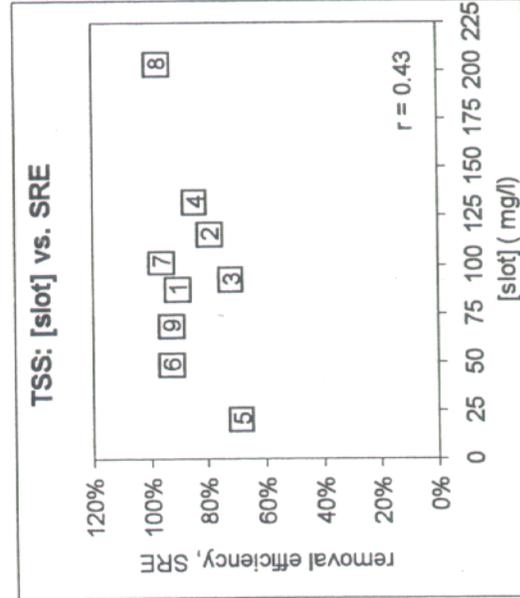
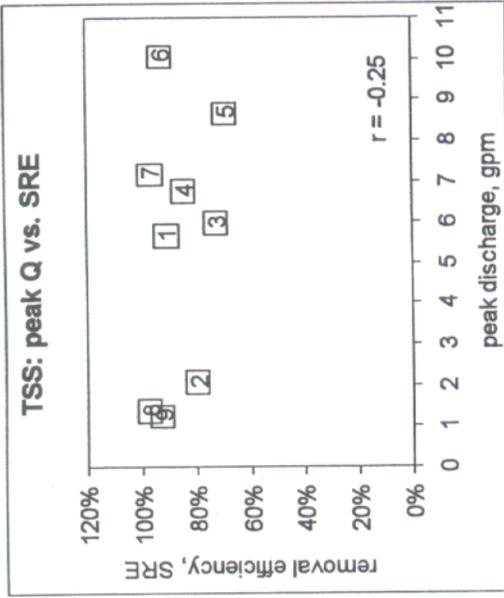
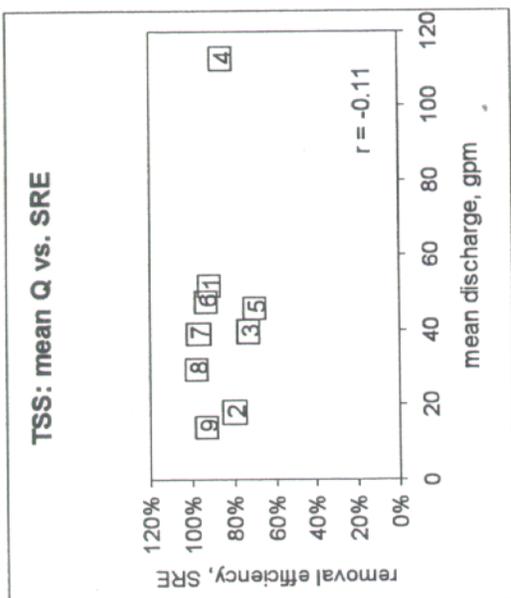
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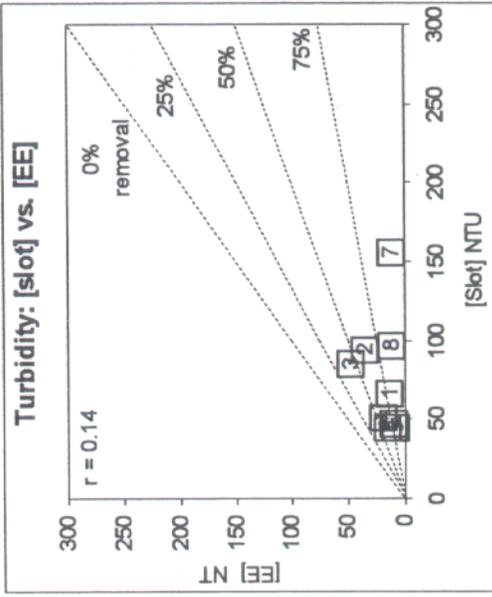
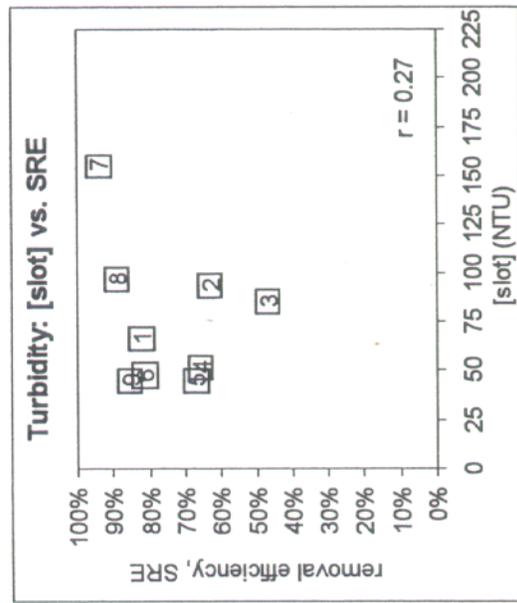
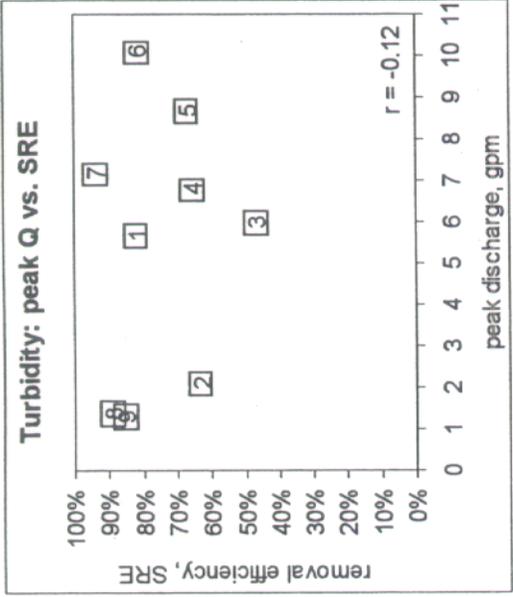
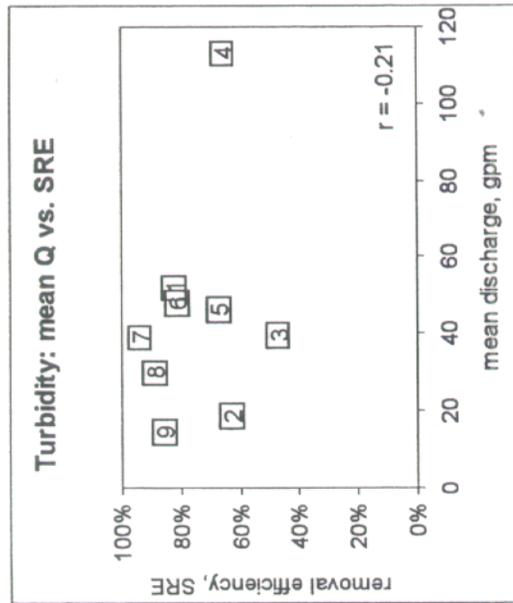
1. Total mass is calculated for the volume of sample that is given to us.
2. The D-values are calculated based on particles that are < 212.
3. Mass is calculated by multiplying %vol by TSS for each size fraction, then summing for a total.

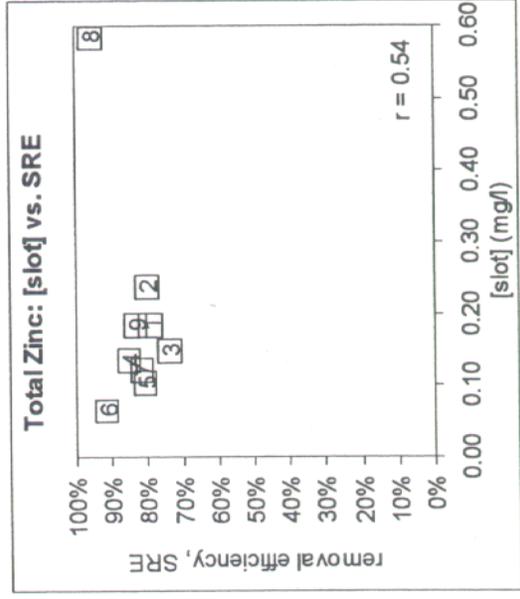
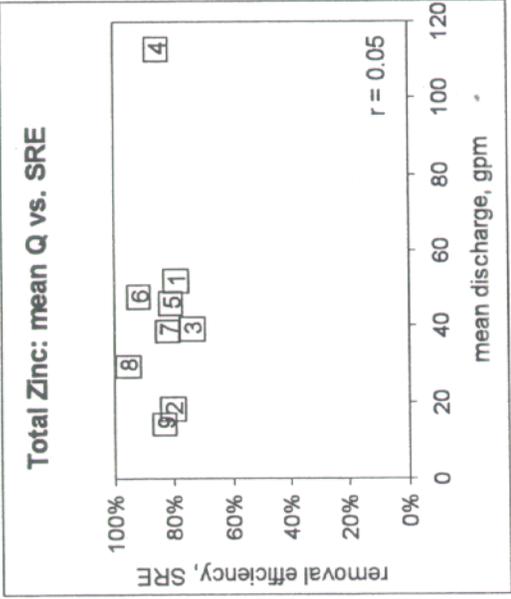
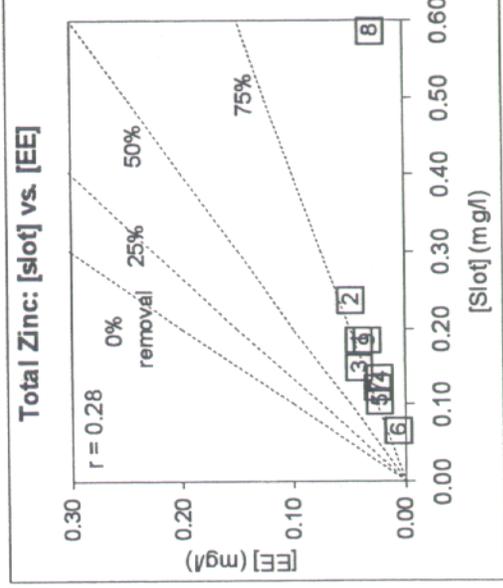
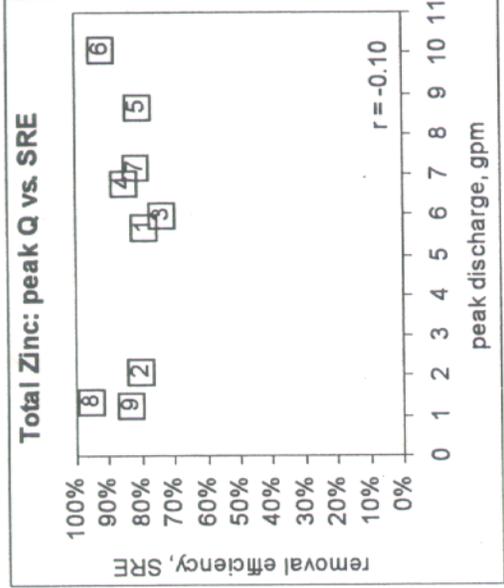


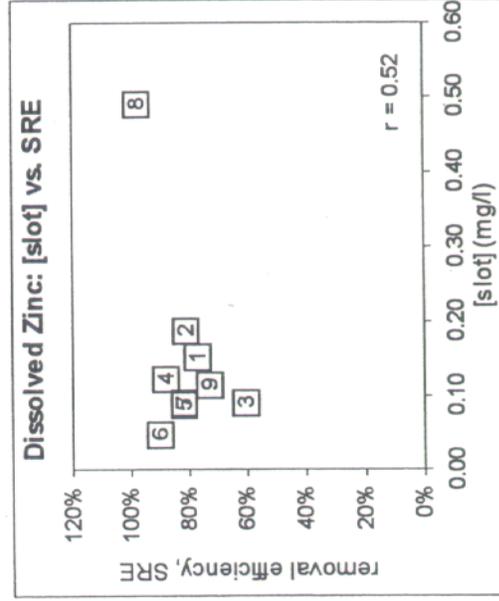
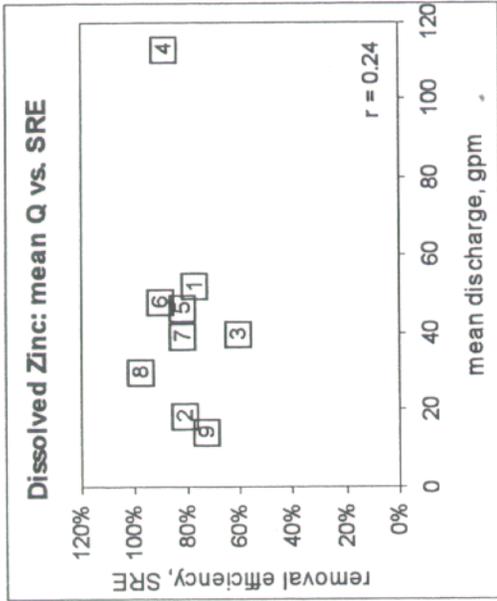
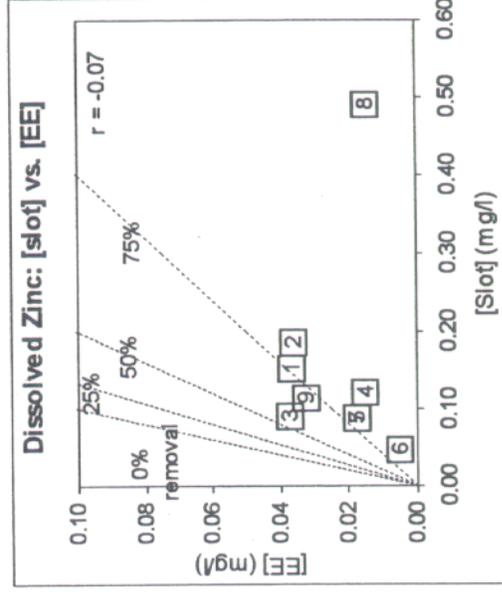
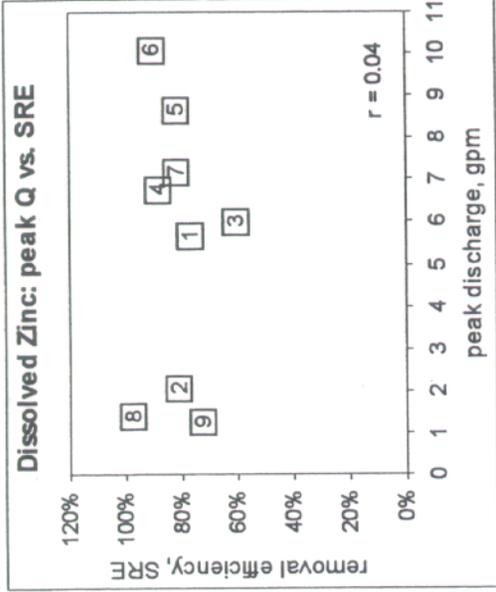
APPENDIX C – SRE and water quality concentration correlation graphs

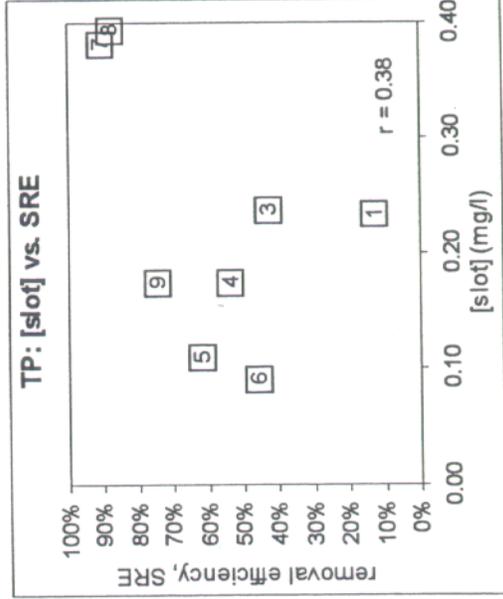
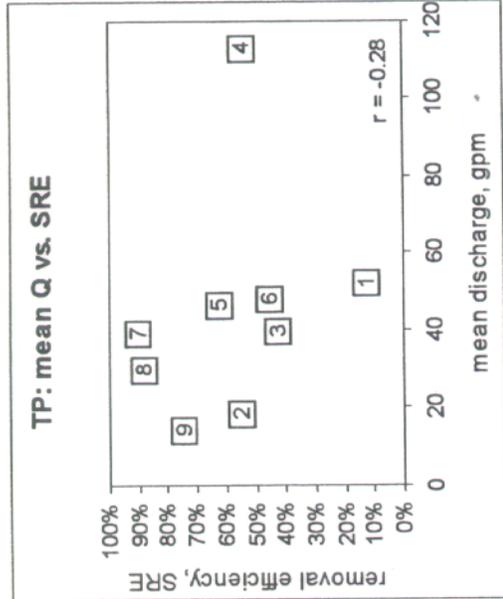
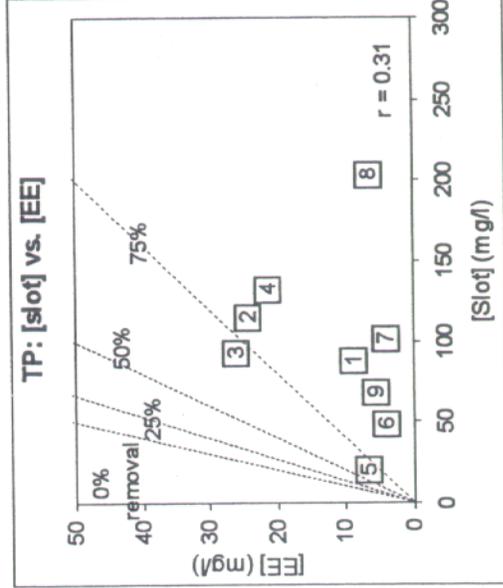
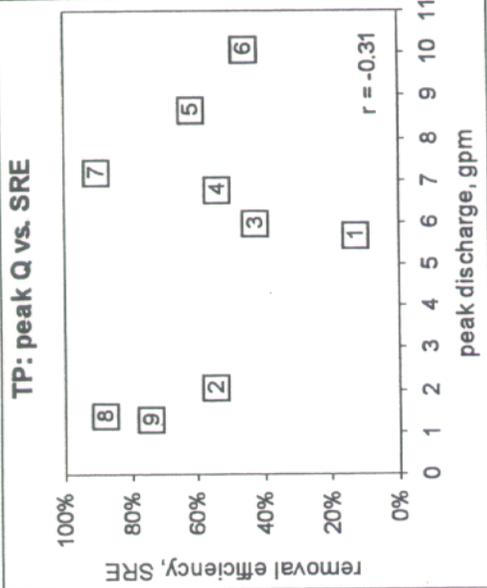


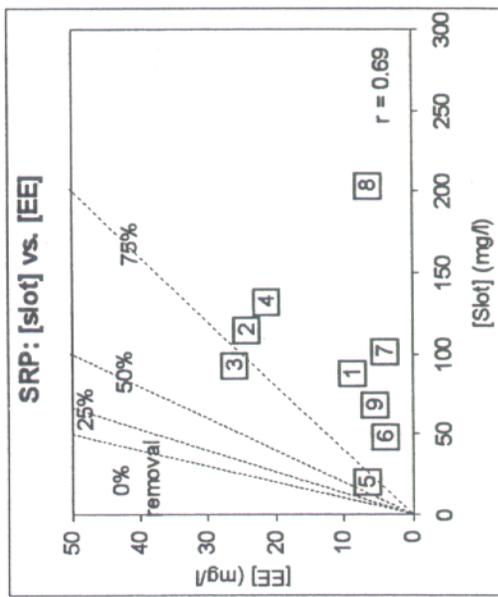
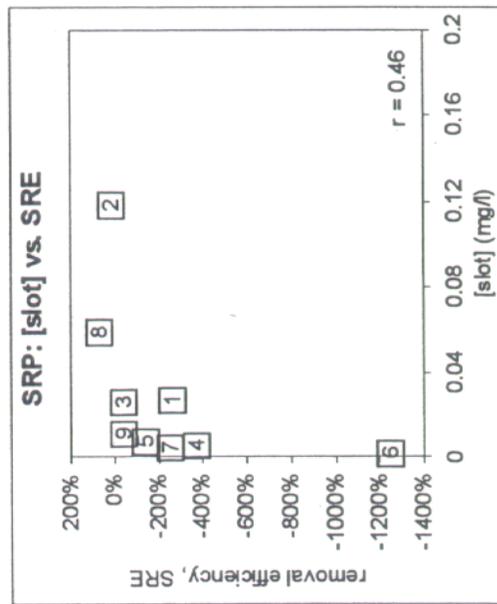
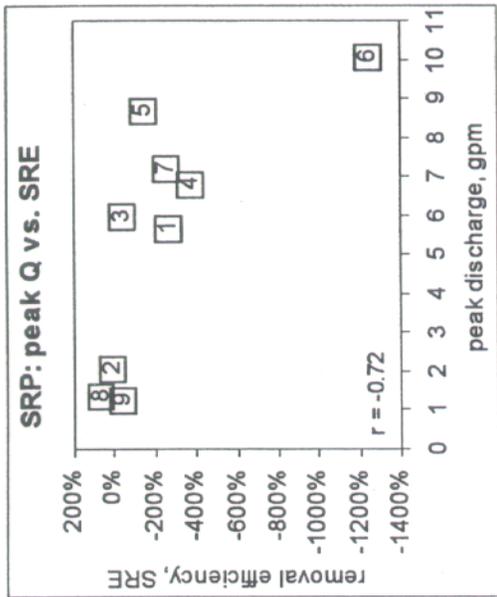
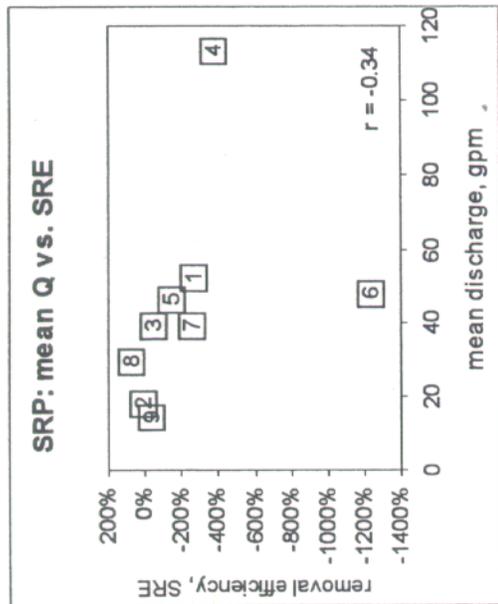












APPENDIX D – WAC acute and chronic freshwater zinc criteria calculations

SR167 Ecology Embankment

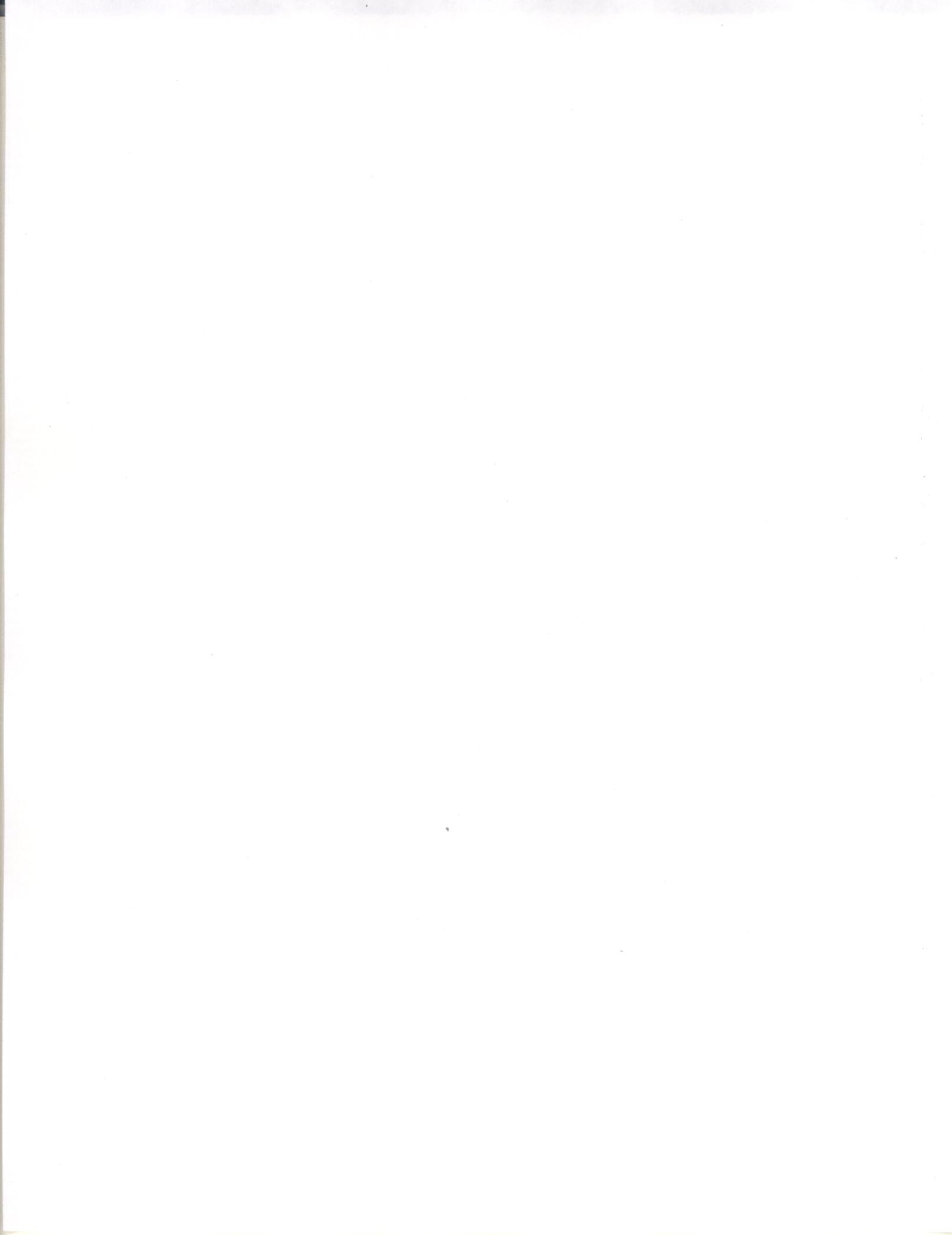
Storm#	Hardness mg/L CaCO3	WAC 173-201A-040 freshwater criteria				
		Dissolved Zn mg/L	Zinc - dissolved Acute Limit mg/L	Zinc - dissolved Chronic Limit mg/L	Over Acute ?	Over Chronic ?

Ecology Embankment

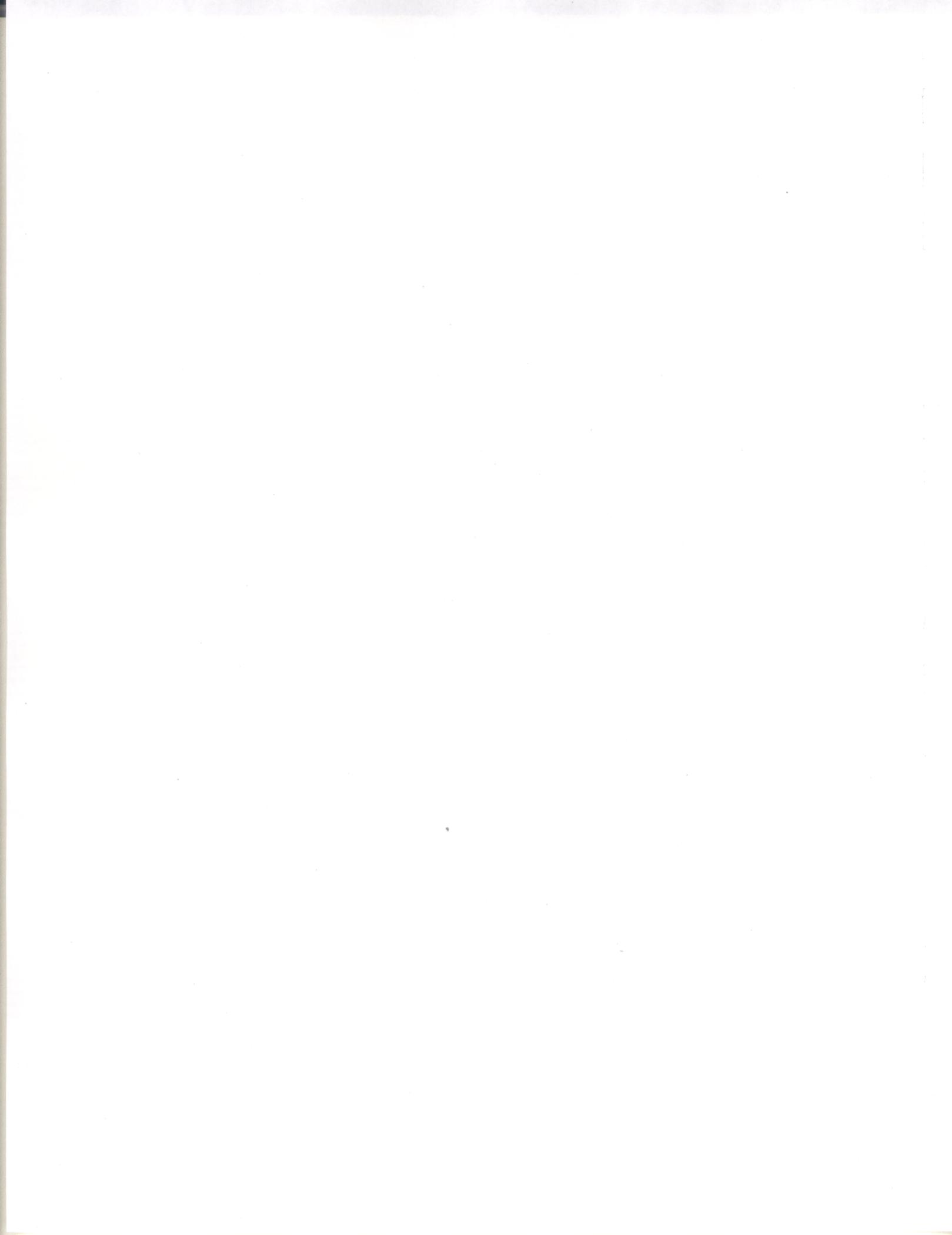
1	30.99	0.036	0.0424	0.0387	no	no
2	44.0	0.036	0.0571	0.0521	no	no
3	34.0	0.037	0.0459	0.0419	no	no
4	20.5	0.015	0.0299	0.0273	no	no
5	18.4	0.017	0.0273	0.0249	no	no
6	18.0	0.005	0.0268	0.0244	no	no
7	17.0	0.017	0.0255	0.0233	no	no
8	27.8	0.014	0.0387	0.0353	no	no
9	37.5	0.032	0.0499	0.0455	no	no

Slot drain

1	23.47	0.186	0.0335	0.0306	OVER ACUTE	OVER CHRONIC
2	31.1	0.239	0.0425	0.0388	OVER ACUTE	OVER CHRONIC
3	22.3	0.150	0.0321	0.0293	OVER ACUTE	OVER CHRONIC
4	20.3	0.137	0.0296	0.0271	OVER ACUTE	OVER CHRONIC
5	13.9	0.106	0.0215	0.0196	OVER ACUTE	OVER CHRONIC
6	9.77	0.068	0.0159	0.0146	OVER ACUTE	OVER CHRONIC
7	20.3	0.123	0.0296	0.0271	OVER ACUTE	OVER CHRONIC
8	14.3	0.587	0.0220	0.0201	OVER ACUTE	OVER CHRONIC
9	20.9	0.185	0.0304	0.0277	OVER ACUTE	OVER CHRONIC



APPENDIX E – Graph of monitoring vault water level versus invert of 0.75-foot H-flume.



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Monitoring vault water level

